ACEROS PARA TRABAJO EN FRÍO

Formatos disponibles

Productos largos* | Chapas

*) Presented data refer exclusivly to long products. Please observe the detailed explanations at the end of the data sheet (pdf).

Descripción

Acero para herramientas de corte (matrices y punzones), herramientas de estampación y punzonado, herramientas de roscado y cuchillas de corte.

Método de obtención

Convencional

Propiedades

- Resistencia al desgaste : muy alta
- Resistencia a la compresión : muy alta
- Estabilidad dimensional : buena

Aplicaciones

- Cuchillas de máquinas (fabricantes)
- Corte fino / Troquelado / Estampado
- Laminación
- Compactación de polvo
- Conformado en frío

Datos técnicos

Designación	
1.2363	SEL
~T30102	UNS
X100CrMoV5	EN
~X100CrMoV5-1	
A2	AISI
SKD12	JIS

Estándares	
4957	EN ISO

Composición Química

C	Si	Mn	Cr	Mo	V
1,00	0,30	0,55	5,20	1,10	0,25

Características

	Resistencia a la compresión	Estabilidad dimensional durante el tratamiento térmico	Tenacidad	Resistencia al desgaste abrasivo
BÖHLER K305	★★★★★	★★★	★★	★★★★★
BÖHLER K306	★★★★	★★★	★★★★	★★★
BÖHLER K313	★★★★	★★★	★★★	★★★
BÖHLER K320	★★★	★★★	★★★	★★★
BÖHLER K329	★★★	★★★	★★★★	★★★★
BÖHLER K600	★	★★★	★★★★★	★
BÖHLER K601	★	★★★	★★★★	★★
BÖHLER K605	★★	★★★	★★★★	★

Estado de suministro

recocido

Dureza (HB)	máx. 240

Tratamiento térmico

Recocido

Temperatura	800 a 850 °C	Slow controlled cooling in furnace at a rate of 10 to 20 °C/hr (18 to 36 °F/hr) down to approximately 600 °C (1112 °F) || Further cooling in air.

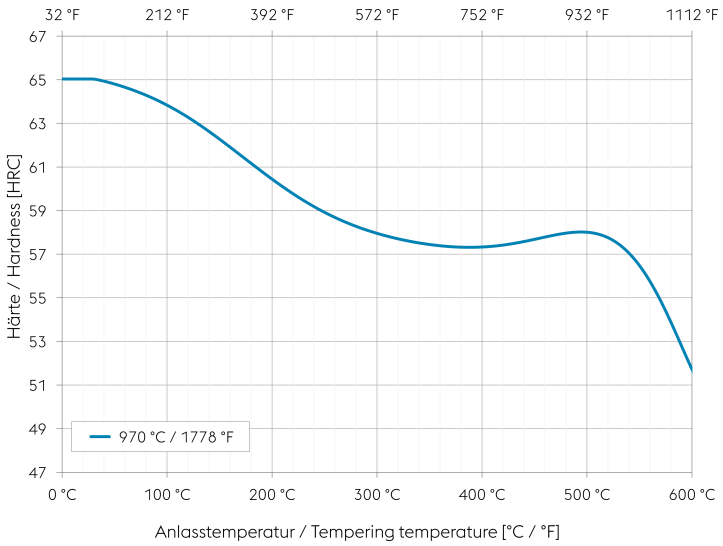
Alivio de tensiones

Temperatura	650 °C	After through heating, hold in neutral atmosphere for 1-2 hours. || Slow cooling in furnace || Intended to relieve stresses caused by extensive machining or in complex shapes.

Temple y revenido

Temperatura	950 a 980 °C	Quenching: Oil, salt bath (220 to 250 °C or 500 to 550 °C | 428 to 482 °F or 932 to 1022 °F), gas, air. || Holding time after temperature equalization: 15 to 30 minutes. || After hardening, tempering to the desired working hardness according to the tempering chart.

Tempering chart



Specimen size: square 20 mm (0,787 inch)

Slow heating to tempering temperature immediately after hardening.

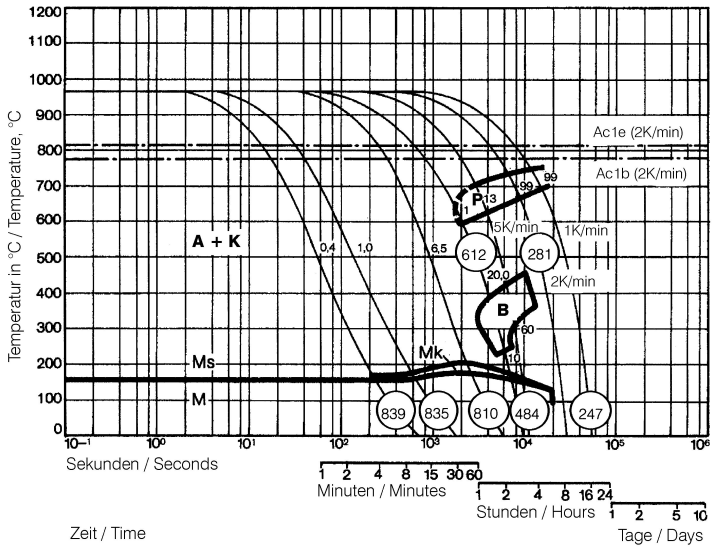
Time in furnace 1 hour for each 20 mm (0,787 inch) of workpiece thickness but at least 2 hours.

Please refer to the tempering chart for guide values for the achievable hardness after tempering.

Tempering for stress relieving 30 to 50 °C (86 to 122 °F) below the highest tempering temperature.

Cooling in air after each tempering step is recommended.

Continuous cooling CCT curves



Austenitising temperature: 960 °C (1760 °F)

Holding time: 15 minutes

O Vickers hardness

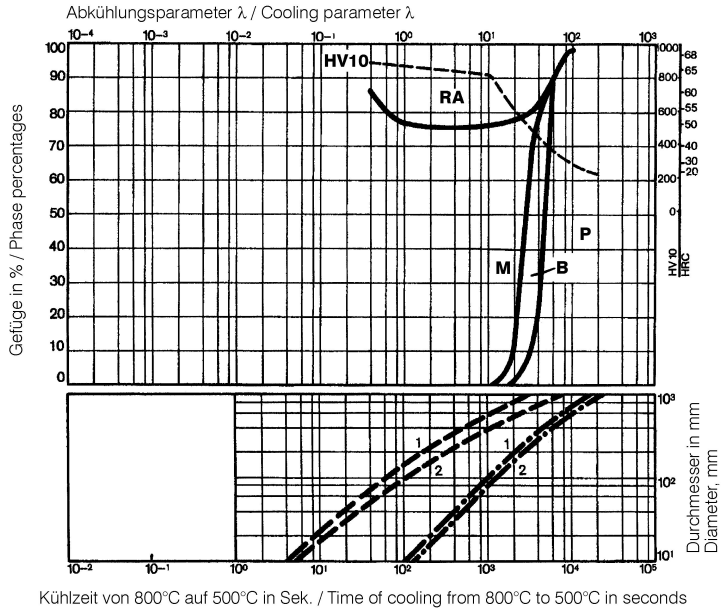
1...99 phase percentages

0.4...20.0 cooling parameter λ, i.e. duration of cooling from 800 to 500 °C (1472 to 932 °F) in s x 10^{-2}

1...5 K/min... cooling rate in the range of 800 to 500 °C (1472 to 932 °F)

A... Austenite
K... Carbide
P... Perlite
B...Bainite
M... Martensite
Ms... Martensite starting temperature

Quantitative phase diagram

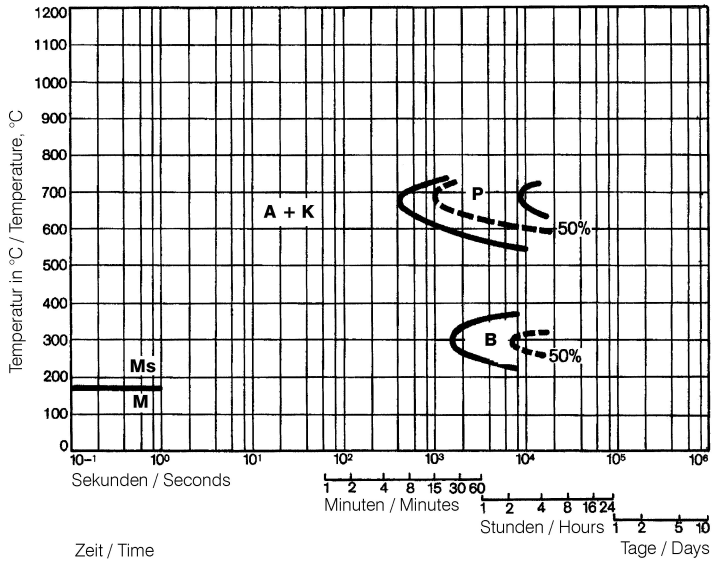


HV10... Vickers Hardness
RA... Residual austenite
M... Martensite
B... Bainite
P... Perlite

- - - Oil cooling
- • - Air cooling

1... Edge or face
2... Core

Isothermal TTT curves



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Holding time: 15 minutes

A... Austenite
K... Carbide
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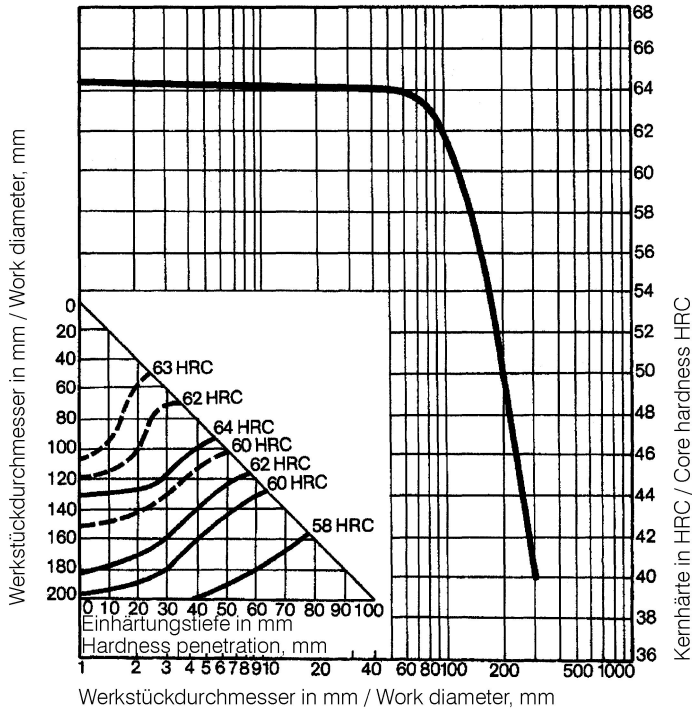
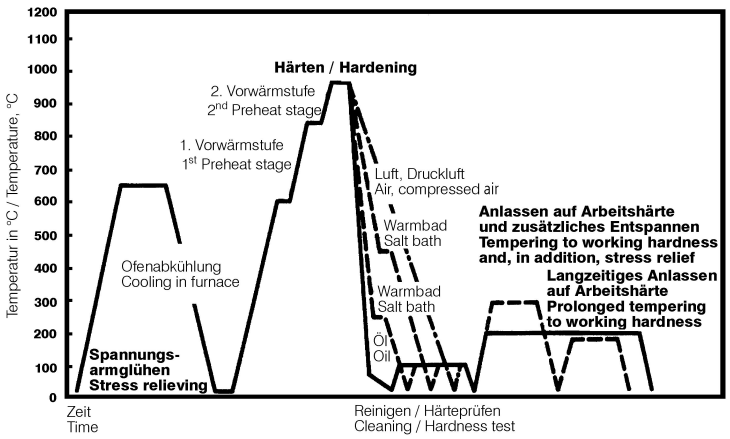
Influence of work diameter on core hardness and hardness penetration



Quenched from: 960 °C (1760 °F)

Quenchant:
— Oil
- - - Air

Heat treatment sequence



Propiedades físicas

Temperatura (°C)	20
Densidad (kg/dm^3)	7,7
Conductividad térmica (W/(m.K))	26
Calor específico (kJ/kg K)	0,46
Resistencia eléctrica específica (Ohm.mm^2/m)	0,52
Módulo de elasticidad (10^{3}N/mm^2)	190

Expansión térmica

Temperatura (°C)	100	200	300	400	500
Expansión térmica (10^{-6} m/(m.K))	12	12,1	11,9	11,6	11,7

Long Products: For additional specifications and technical requirements, please contact our regional voestalpine BÖHLER sales companies.

Sheet & Plates: Product Variant may differ in terms of melting process, technical data, delivery, and surface condition as well as available product dimensions. Please contact voestalpine BÖHLER Bleche GmbH & Co KG.

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ONE STEP AHEAD.